

CLAIMS

What is claimed is:

1. A system for enclosing a load with film, the load being placed on a pallet and having a top, a bottom, and sides, the film being in the form of a sleeve having sides that define an inner space when separated, the system comprising:
 - a frame including a plurality of vertical members defining an inside of the frame;
 - a platform positioned within the inside of the frame on which the pallet is receivable;
 - a clamp for engaging the sides of the load when the pallet is disposed on the platform;
 - a rack mounted to the frame such that the rack is vertically movable between an upper position in which the rack is above the top of the load and a lower position in which the rack is below the bottom of the load when the pallet is disposed on the platform;
 - a pair of cross members mounted to the rack such that the cross members are horizontally movable;
 - engagement means mounted to the cross members for engaging the sides of the film; and
 - sealing means for sealing the sides of the film together;whereby the load is enclosed by:
 - placing the pallet on the platform;
 - engaging the sides of the film with the engagement means when the rack is in the upper position;
 - moving the cross members outwardly to separate the sides of film;
 - moving the rack to the lower position, thereby enveloping the load within the sleeve;
 - engaging the load with the clamp;
 - separating the load from the pallet;
 - moving the cross members inwardly so that the sides of the film are brought together;
 - sealing the sides of film with the sealing means;
 - disengaging the sides of the film from the engagement means;
 - moving the cross members outwardly; and
 - replacing the load on the pallet.

2. A system as claimed in claim 1 wherein the engagement means includes a plurality of vacuum ports disposed on the cross members.

3. A system as claimed in claim 1 wherein the sealing means includes heating elements disposed on the cross members.

4. A system as claimed in claim 1 further comprising cutting means for cutting the film, whereby the system encloses the top of the load by:

sealing the film with the sealing means at a position above the top of the load; and
cutting the film with the cutting means.

5. Apparatus for sealing a load place on a pallet with film, the load having a bottom positioned against the pallet, the apparatus comprising:

a clamping subsystem for securing the load independently of the pallet; and
a film subsystem for enveloping at least the bottom of the load with the film when the load is secured by independently of the pallet by the clamping subsystem.

6. Apparatus as claimed in claim 5 wherein the film subsystem further seal the film below the bottom end of the load.

7. Apparatus as claimed in claim 5 wherein the clamping subsystem includes two horizontally movable plates for clamping the load therebetween.

8. Apparatus as claimed in claim 5 wherein the film subsystem includes:

a vertically movable rack;
a pair of horizontally movable cross members disposed on the rack;
an engaging subsystem disposed on the cross members for engaging the film; and
a sealing subsystem for forming a seal the film;
whereby the load is sealed by:
engaging the film with the engaging subsystem;
moving the cross members outwardly to define an inner space within the film;

lowering the rack to a position below the bottom of the load so that the film descends over the stack of cartons and envelops the stack of cartons within the inner space of the film;
securing the load independently of the pallet with the clamping subsystem;
separating the load from the pallet;
forming a seal in the film below the bottom of the load;
disengaging the sides of the film;
moving the cross members outwardly; and
positioning the load on a pallet with the seal disposed therebetween.

9. Apparatus as claimed in claim 8 further comprising an injection subsystem including a compressor and an injection nozzle in communication with the compressor and disposed such that gas is injectable into the inner space of the film.

10. Apparatus as claimed in claim 5 wherein the engaging subsystem includes a plurality of vacuum ports disposed on each of the cross members.

11. Apparatus as claimed in claim 5 wherein the sealing subsystem includes a heat impulse bar mounted to at least one of the cross members.